REMARKS

Claims 1 and 2 are pending in this application. By this Amendment, claim 1 is amended, and new claim 2 is added. Support for the amendments to claim 1 can be found in the specification as originally filed, for example, at paragraphs [0007]-[0008], [0010], [0017]-[0018] and [0034], and in claim 1 as originally filed. Support for new claim 2 can be found in the specification as originally filed, for example, at paragraphs [0007]-[0008], [0010]-[0011], [0017]-[0018] and [0034], and in claim 1 as originally filed. Thus, no new matter is added.

The courtesies extended to Applicants' representative by Examiner Yee at the interview held March 31, 2004, are appreciated. Applicants' separate record of the substance of the interview is incorporated into the following remarks.

The Office Action rejects claim 1 under 35 U.S.C. §103(a) over U.S. Patent 4,345,943 to Takahashi et al. Applicants respectfully traverse this rejection.

Claim 1 sets forth a "turbo component for a turbocharger having overall composition, in ratio by mass, of Cr: 23.8 to 44.3%, Mo: 1.0 to 3.0%, Si: 1.0 to 3.0%, P: 0.1 to 1.0%, C: 1.0 to 3.0%, and the balance of Fe and inevitable impurities, and Cr carbide is dispersed in the matrix at a density ratio of 95% or more, wherein the turbo component is obtained by steps comprising: using a mixed powder having 1.0 to 3.3 mass % of Fe-P powder including P: 10 to 30 mass %, and 0.5 to 1.5 mass % of graphite powder, added to Fe alloy powder comprising, in ratio by mass, Cr: 25 to 45%, Mo: 1 to 3%, Si: 1 to 3%, C: 0.5 to 1.5%, and the balance of Fe and inevitable impurities; forming the mixed powder; and sintering." Claim 2 sets forth a "turbo component for a turbocharger having overall composition, in ratio by mass, of Cr: 23.8 to 44.3%, Mo: 1.0 to 3.0%, Si: 1.0 to 3.0%, P: 0.1 to 1.0%, C: 1.0 to 3.0%, and the balance of Fe and inevitable impurities, and Cr carbide and Mo carbide are

dispersed in the matrix at a density ratio of 95% or more, wherein the turbo component is obtained by steps comprising: using a mixed powder having 1.0 to 3.3 mass % of Fe-P powder including P: 10 to 30 mass %, and 0.5 to 1.5 mass % of graphite powder, added to Fe alloy powder comprising, in ratio by mass, Cr: 25 to 45%, Mo: 1 to 3%, Si: 1 to 3%, C: 0.5 to 1.5%, and the balance of Fe and inevitable impurities; forming the mixed powder; and sintering." In the turbo components of claims 1 and 2, carbide is dispersed throughout the matrix at a claimed density ratio of 95% or more.

As disclosed in the attached Declaration of Michiharu Mogami Under 37 C.F.R. §1.132 ("Declaration"), when sintering was performed on a mixed powder as set forth in claims 1 and 2, the resulting matrix was composed of 20% by weight of chromium, 1% by weight of molybdenum, a very small amount of carbon, and the balance of iron. See Declaration, paragraph 5. Also, the Fe alloy powder contained large amounts of Cr –25 to 45%– and Si –1.0 to 3.0%–, which have a stabilizing effect for ferrite structures. See Declaration, paragraph 5; Harold W. Paxton, *6.2 Iron and Steel*, *in* Marks' Standard Handbook for Mechanical Engineers 6-19 (McGraw Hill 1996) (attached). The composition of the matrix was similar to a ferrite-type stainless steel. See Declaration, paragraph 5. As with ferrite-type stainless steel having a high content of chromium, a martensite matrix structure is not formed by quenching. That is, the metal structure of the matrix is a ferrite structure, even after a heat treatment is performed. See Declaration, paragraph 5. In addition, cementite is not present in the matrix structure. See Declaration, paragraph 5 and Figs. 1 and 2, appended thereto. Thus, the turbo components of claims 1 and 2 have a ferrite matrix structure but do not include a pearlite structure including cementite.

In contrast, Takahashi describes its components as having a pearlite structure and consisting mainly of cementite or eutectic crystal compounds of cementite and phosphorus. See Takahashi, col. 3, lines 6-13 and 60-61. However, a pearlite structure will not provide

the same –and necessary– characteristics of corrosion and wear resistance at high temperatures. Takahashi also discloses that its matrix may be composed of bainite and martensite structures to increase the matrix strength. See Takahashi, col. 3, line 61 – col. 4, line 6. Thus, the metal structure of the turbo components of claims 1 and 2, which have a ferrite matrix structure, is different from that of Takahashi.

Further, the composition and the metallographic structure of an alloy are important in determining the alloy's characteristics and suitability for use. Alloys of differing compositions and metallographic structures may be used for differing components of the same overall product, depending on the demands made of each component during use. Internal combustion engines, for example, employ multiple components, each of which differs in the characteristics and properties required for optimum functionality.

Claims 1 and 2 relate to a type of component of an internal combustion engine, a turbo charger. A turbo charger drives a turbine using exhaust gas of the engine to supply the energy necessary to supply compression air to the engine. Turbo charger components must be resistant to wear from exposure to the high-temperature exhaust gas, as well as being resistant to oxidation at high temperatures. The composition and dispersion ratios set forth in claims 1 and 2 enhance the beneficial properties of the turbo component, specifically, the heat resistance, corrosion resistance and wear resistance, and provide a product that is superior to conventional components. See specification, [0010], [0011], [0016], [0020], [0034] and [0035].

In contrast, Takahashi discloses sintered materials for use in an internal combustion engine as the sliding plane of a rocker arm, a valve seat, a piston ring, a cylinder liner and so on. Each of these components requires specific characteristics. The rocker arm is a component in which wear resistance at high bearing pressure is required. The piston ring and cylinder require wear resistance at high temperature but do not require corrosion resistance.

The valve seat in an internal combustion engine requires wear resistance and corrosion resistance at high temperature but at a temperature lower than that for a turbo charger. Takahashi teaches the use of a pearlite iron alloy for these components, rather than a Fe alloy having a dispersion ratio of at least 95%. In contrast, the turbo components set forth in claims 1 and 2 can provide oxidation and wear resistance, which are required by the extremely severe environment of a turbocharger, which cannot be obtained by Takahashi.

In view of the foregoing, it is respectfully submitted that this application is in condition for allowance. Favorable reconsideration and prompt allowance of claims 1 and 2 are earnestly solicited.

Should the Examiner believe that anything further would be desirable in order to place this application in even better condition for allowance, the Examiner is invited to contact the undersigned at the telephone number set forth below.

Respectfully submitted,

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WPB:JMS/jms

Attachment:
Declaration of Michiharu Mogami Under 37 C.F.R. §1.132
Harold W. Paxton, *6.2 Iron and Steel, in* Marks' Standard Handbook for Mechanical Engineers 6-19 (McGraw Hill 1996).

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